

**ABSTRACT OF THE DISCLOSURE**

A high-resolution magnetic encoder system includes a magnetic resistive sensor, a fixed suspension, and a mechanism. The magnetic resistive sensor is mounted to the fixed suspension above a magnetic medium having at least one magnetic track. The fixed suspension is attached  
5 to the mechanism, such as a housing, a substrate, and/or an electronic board. The sensor is adapted to perform a relative movement with respect to and in close contact to the surface of the magnetic medium. The magnetic medium may be protected by an overcoat layer. The magnetic resistive sensor may be Giant Magnetic-Resistive (GMR) sensor and/or a Tunneling Magnetic-Resistive Sensor (TMR).